UNIVERSITY of VIRGINIA
BIOCOMPLEXITY INSTITUTE

UVA COVID-19 MODEL WEEKLY UPDATE

VDH VIRGINIA DEPARTMENT OF HEALTH

July 2nd, 2021

KEY TAKEAWAYS

- The Delta variant makes up over 13% of sequenced cases in Virginia, and is likely to increase its share quickly.
- Vaccination uptake continues to decline. Although Virginia met Biden's goal of 70% of adults vaccinated, vaccinations are not distributed evenly, and many areas of the state remain undervaccinated.
- The Southwest and Northwest regions of Virginia appear to be most vulnerable to a resurgence of COVID as the Delta variant takes hold.

2 per 100k
Average Daily Cases Week Ending June 27, 2021

6 per 100k
Potential Peak Average Delta Variant Scenario Daily Cases, Week Ending September 5, 2021

4,422
Average Daily 1st Doses June 20, 2021

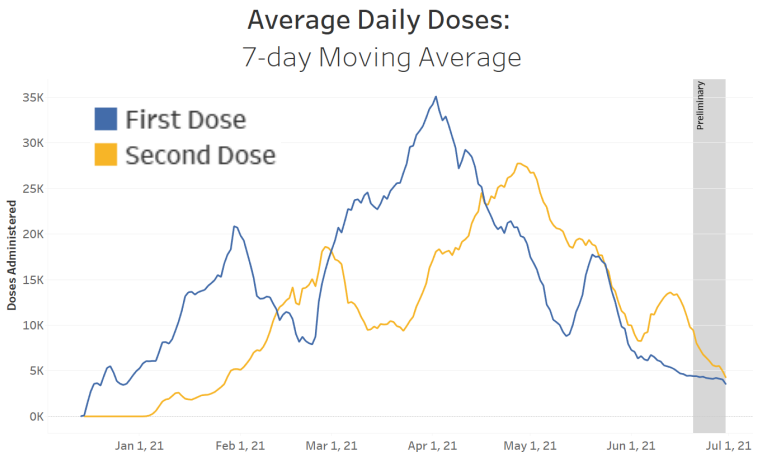
9,463
Average Daily 2nd Doses June 20, 2021

KEY FIGURES

Reproduction Rate
(Based on Confirmation Date)

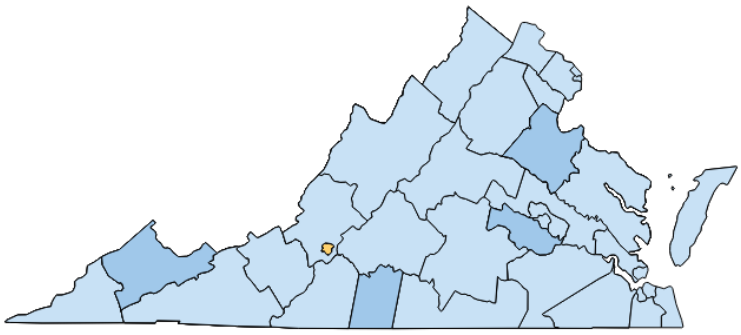
Region	R_e June 28	Weekly Change
Statewide	**1.121**	**0.235**
Central	1.180	0.289
Eastern	1.018	-0.007
Far SW	1.116	0.305
Near SW	1.211	0.413
Northern	1.100	0.176
Northwest	0.972	0.091

Vaccine Administrations



Growth Trajectories: 0 Health Districts in Surge

Status	# Districts (prev week)
Declining	4 (19)
Plateau	30 (16)
Slow Growth	1 (0)
In Surge	0 (0)



VIRGINIA'S HEALTH IS IN OUR HANDS. Do your part, stop the spread.

UVA COVID-19 MODEL WEEKLY UPDATE

THE MODEL

The UVA COVID-19 Model and the weekly results are provided by the UVA Biocomplexity Institute, which has over 20 years of experience crafting and analyzing infectious disease models. It is a (S)usceptible, (E)xposed, (I)nfected, (R)ecovered epidemiologic model designed to evaluate policy options and provide projections of future cases based on the current course of the pandemic.

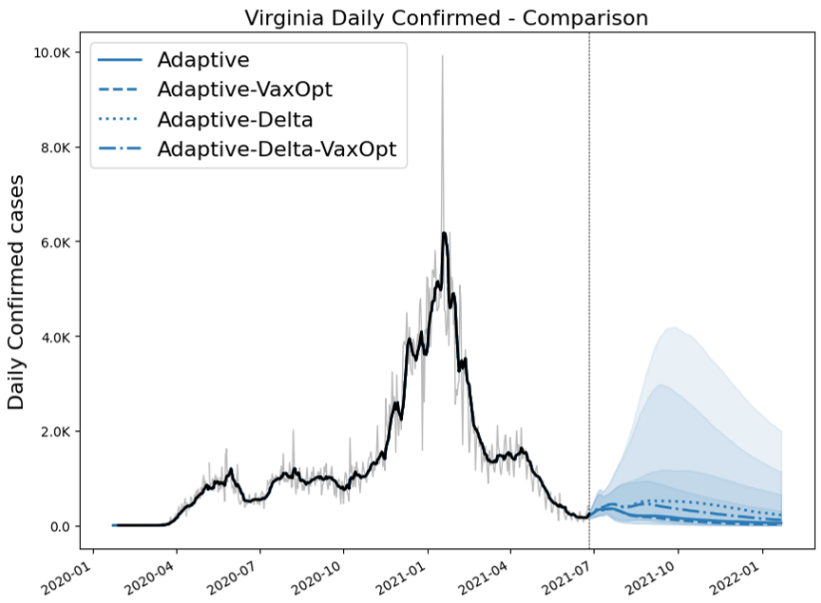
COVID-19 is a novel virus, and the variant mix changes constantly. The model improves as we learn more.

THE PROJECTIONS

The UVA team continues to improve the model. The UVA model uses an "adaptive fitting" methodology, where the model traces past and current trends and uses that information to predict future cases at the local level. Since the B.1.1.7 Variant has become dominant, the model includes increased transmission and severity associated with this Variant of Concern. The "Delta" scenarios adds the known effects of the Delta Variant of Concern to transmission rates. The model incorporates projections on the impact of vaccines, including current vaccinations and the stalled rate of vaccine uptake. The "VaxOpt" scenarios show the impact of vaccine acceptance increasing to 85% of the adult population.

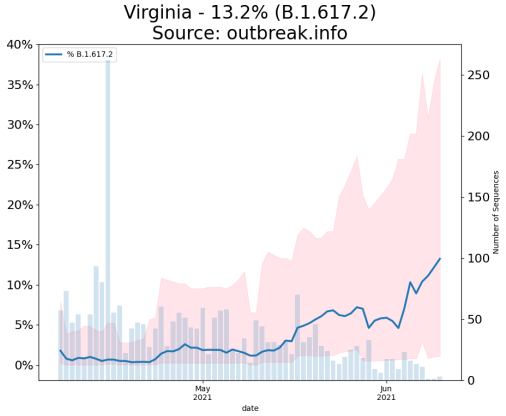
MODEL RESULTS

On the current course, the model estimates a small bump in cases over the next few weeks, albeit from a low level. At such low case levels, this could simply be noise. However, vaccination rates are still below herd immunity levels, many Virginians are returning to normal, and the Delta variant is beginning to to spread in Virginia. With the Delta variant, it is likely cases could reach a sustained peak with **6 average daily cases** per 100,000 beginning in August and lasting well into the fall. To lessen the projected peak, we must give vaccines time to have an impact, especially as the Delta variant spreads in Virginia. **Do your part to stop the spread. Continue to practice good prevention and get vaccinated when eligible.**

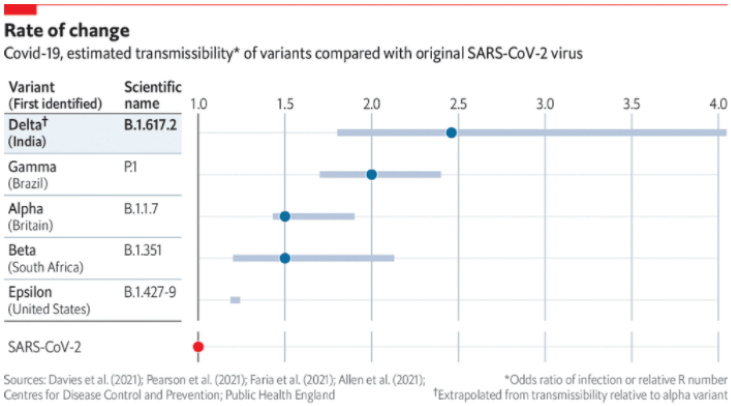


THE DELTA VARIANT

The Delta variant - the same variant that ravaged India - is in Virginia. The latest data suggests that the Delta variant makes up over 13% of sequenced cases. As in other countries and states, Delta is quickly gaining share in Virginia. In the United States, it already makes up over half of sequenced cases. Reported prevalence, based on the day a case is reported, reflects prevalence at the time an infection occurred. Due to the time it takes to identify a case and process tests, current prevalence is likely already much higher than reported prevalence.



What is the Delta Variant?



Source: The Economist

The Delta variant is concerning for a number of reasons. First, it spreads at a much higher rate than previous variants. Although estimates vary, it appears to spread two and half times more readily than the original COVID-19 virus. The Alpha variant, which spread quickly through Britain, was just one and a half times more transmissible than the wild-type virus. Second, it shows some limited vaccine escape primarily among persons not fully vaccinated. Although those with only one dose of a two-dose COVID-19 vaccine retain some risk for infection and hospitalization, that risk is higher with the Delta variant. Although sparse, early evidence suggests that it may also cause more severe illness. These factors explain why the Delta variant is causing crises in many countries around the globe.

What is the Outlook?

As noted, the Delta variant spreads rapidly. It is the dominant variant in the United States and is likely to become the dominant variant in Virginia quickly. With the Delta variant, the UVA model projects a sustained surge in cases through the fall, causing almost 50,000 more cases in 2021 than with the current variant mix, dominated by the Alpha variant. Surges, however, are much more likely to occur, and to result in more case, in areas with lower vaccination rates. Although pockets of vulnerability exist statewide, current projections put Southwest and Northwest Virginia at higher risk due to the Delta variant. Projections indicate these regions could see case numbers approaching highs from same months in 2020. There is some good news, however. Virginia has been very successful in vaccinating the vulnerable senior population. Even if the Delta variant is more severe, Virginia is unlikely to repeat the numbers of hospitalizations and deaths seen in 2020.

What Can I Do?

Although the Delta variant is more dangerous than other COVID-19 variants, the advice remains the same: get vaccinated when eligible. Although one dose of a two vaccine regime does not provide as much protection against the Delta variant as it does other variants, a single dose still provides substantial protection, particularly against severe disease. Once all doses are received and given two weeks to take effect, COVID-19 vaccines have proven remarkably effective at protecting individuals, including against the Delta variant. Unvaccinated individuals remain at risk, and pose an increased risk to spreading the Delta variant. Unless fully vaccinated, continue to wear a mask, social distance, and practice good prevention. Virginia's health is in our hands.